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EXAMINER
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MUTSCHLER, BRIAN L

ART UNIT	PAPER NUMBER
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1753

DATE MAILED: 03/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/931,695

Applicant(s)

JEONG, IN KWON

Examiner

Brian L. Mutschler

Art Unit

1753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 January 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 20020211.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## DETAILED ACTION

### *Drawings*

1. The drawings are objected to because the arrow indicating the direction of rotation in assembly **104** of Figure 14 appears to be pointed in the wrong direction. The carousel **120** should rotate in a counterclockwise direction (see page 27 at line 21 of the instant disclosure). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### *Claim Rejections - 35 USC § 112*

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 9-11 and 28-30 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: the relationship between the object processing station and the other structural elements of the system. Since the system is a collection of interconnected structural devices, it is not clear how the object processing station fits within the overall structure of the system. The same applies to dependent claims 10, 11, 29, and 30.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-30 are rejected under 35 U.S.C. 102(b) as being anticipated by WO 99/26763, herein referred to as WO '763.

Regarding claims 1 and 23, WO '763 discloses a system for processing semiconductor wafers comprising a plurality of object processing assemblies, wherein each processing assembly comprises, *inter alia*, a carousel (top ring device **36**) having a plurality of object carriers (top rings **32, 34**) and adapted to move the wafers between processing positions (figs. 1 and 8A-8D). Each carousel is associated with an object processing unit comprising primary polishing **38** and final polishing **42** subunits (figs. 8A-8D). An object transfer device (robots **26a, 26b**) is positioned between the processing assemblies (fig. 1).

Regarding claim 2, the system comprises a carousel that rotates to move the object carriers in a substantially circular path (figs. 8A-8D).

Regarding claim 3, the system comprises two transfer mechanisms (robots **26a, 26b**) positioned at opposite sides of the system (fig. 1).

Regarding claims 4 and 24, the processing unit is configured to polish the wafers (page 9, lines 4-13).

Regarding claims 5, 6, 8, 25, and 26, the processing unit comprises a plurality of subunits (primary polishing table **38** and final polishing table **42**) configured to polish the wafer (fig. 1; page 9, line 4 to page 10, line 19).

Regarding claims 7 and 27, the system further comprises wafer inverters **16a**, **16b** and is therefore configured to place objects on the sub-processing unit with the face of the wafer in either direction (fig. 1).

Regarding claims 9, 11, 28, and 30, the system further comprises other object processing stations including cleaning units **14a**, **14b** (fig. 1; page 11, lines 21-29).

Regarding claims 10 and 29, the system and the object processing stations are configured to process wafers in series or parallel (figs. 1 and 9; page 12, lines 15-16).

Regarding claim 12, in the method disclosed by WO '763, objects are processed and moved to different processing positions in the first object processing assembly and transferred to the second object processing assembly, where the objects are processed and moved to different processing positions (fig. 9; page 14, line 28 to page 15, line 12).

Regarding claim 13, moving the objects includes rotating the transfer mechanism to move the objects to different processing positions (figs. 8A-8D).

Regarding claim 14, the processing includes polishing and treating with chemicals or water (page 9, line 4 to page 10, line 19).

Regarding claim 15, after leaving the first processing assembly, the wafer is loaded into the second processing assembly at wet station **20a**, is moved and

processed in the second assembly, and is unloaded at primary cleaning unit **18b** (fig. 9; page 14, line 28 to page 15, line 3).

Regarding claims 16-19, the wafer is inverted and then polished and treated at sub-processing units (primary polishing table **38** and final polishing table **42**), while being held by the transfer mechanism (fig. 9).

Regarding claims 20-22, the wafers are transferred to other processing stations for further processing and cleaning (page 14, line 28 to page 15, line 3). The processing station includes cleaning units **14a**, **14b**, which are designed to process two wafers simultaneously (fig. 9).

Since WO '763 teaches all of the limitations recited in the instant claims, the reference is deemed to be anticipatory.

6. Claims 1-30 are rejected under 35 U.S.C. 102(e) as being anticipated by Katsuoka et al. (U.S. Pat. No. 6,629,883), herein referred to as US '883.

Regarding claims 1 and 23, US '883 discloses a system for processing semiconductor wafers comprising a plurality of object processing assemblies, wherein each processing assembly comprises, *inter alia*, carousels (**36R**, **36L**, **27R**, **27L**) having a plurality of object carriers (**32R**, **32L**) and adapted to move the wafers between processing positions (figs. 1, 2, and 5). Each carousel is associated with an object processing unit comprising first polishing **34R**, **34L** and second polishing **35R**, **35L** subunits (figs. 1 and 5). An object transfer device (robots **20**, **21**) is positioned between the processing assemblies (fig. 1).

Regarding claim 2, the system comprises a carousel that rotates to move the object carriers in a substantially circular path (figs. 1, 2, and 38-47).

Regarding claim 3, the system comprises two transfer mechanisms (robots **20**, **21**) positioned at opposite sides of the system (fig. 1).

Regarding claims 4 and 24, the processing unit is configured to polish and/or rinse the wafers(col. 8, line 4 to col. 9, line 10).

Regarding claims 5, 6, 8, 25, and 26, the processing unit comprises a plurality of subunits (first polishing table **34R**, **34L** and final polishing table **35R**, **35L**) configured to polish the wafer (fig. 1; col. 8, lines 4-32).

Regarding claims 7 and 27, the system further comprises wafer reversing devices **28R**, **28L** and is therefore configured to place objects on the sub-processing unit with the face of the wafer in either direction (fig. 1).

Regarding claims 9, 11, 28, and 30, the system further comprises other object processing stations including cleaning units **5**, **6**, **22**, **23** (fig. 1).

Regarding claims 10 and 29, the system and the object processing stations are configured to process wafers in series or parallel (figs. 1 and 24-47; col. 32, line 39 to col. 34, line 3).

Regarding claim 12, in the method disclosed by US '883, objects are processed and moved to different processing positions in the first object processing assembly and transferred to the second object processing assembly, where the objects are processed and moved to different processing positions (fig. 24-47; col. 32, line 39 to col. 34, line 3).

Regarding claim 13, moving the objects includes rotating the transfer mechanism to move the objects to different processing positions (figs. 24-47).

Regarding claim 14, the processing includes polishing and treating with chemicals or water (col. 8, line 4 to col. 9, line 10).

Regarding claim 15, after leaving the first processing assembly (the polishing assembly associated with carousel **36R**), the wafer is loaded into the second processing assembly at a position proximate to carousel **36R** and moved and rinsed at the position of the reversing device **28R** and is unloaded at the second position for further processing (figs. 27-28; col. 32, line 39 to col. 34, line 3).

Regarding claims 16-19, the wafer is inverted and then polished and treated at sub-processing units (first polishing table **34R**, **34L** and second polishing table **35R**, **35L**), while being held by the transfer mechanism **36R**, **36L** (figs. 1, 2, and 5).

Regarding claims 20-22, the wafers are transferred to other processing stations for further processing and cleaning (col. 32, line 39 to col. 34, line 3). The processing station includes cleaning units **5**, **6**, **22**, **23**, which are designed to process two wafers simultaneously (fig. 37).

Since US '883 teaches all of the limitations recited in the instant claims, the reference is deemed to be anticipatory.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian L. Mutschler whose telephone number is (571)




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272-1341. The examiner can normally be reached on Monday-Friday from 7:30am to 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

blm  
March 3, 2004

  
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